



Chicago Metropolitan
Agency for Planning

Managed Lanes

**Presented November 6, 2008
by Tom Murtha**

Why Managed Lanes?

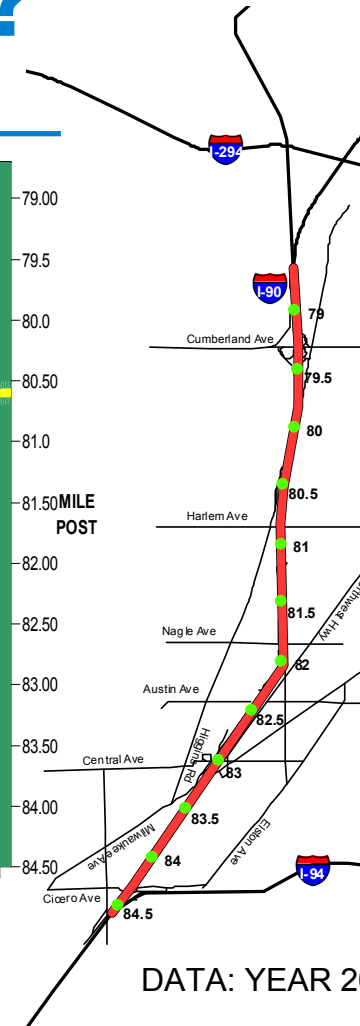
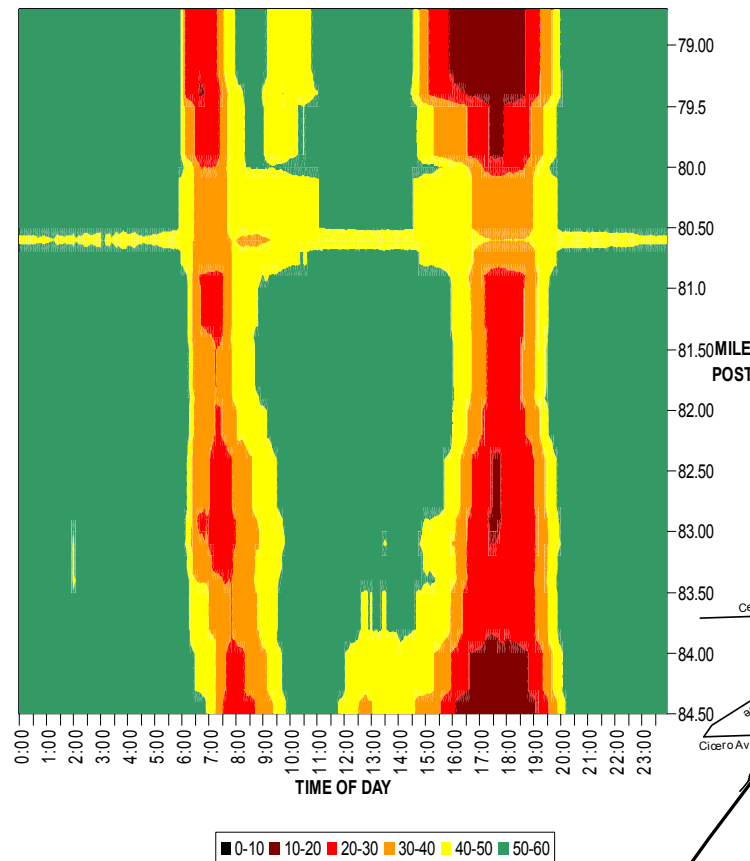
Traffic Congestion in Metropolitan Chicago Costs \$7.3 Billion Annually - Metropolitan Planning Council, 2008. *Moving at the Speed of Congestion.*

Measure	Chicago Region	Chicago Rank	National Composite	Explanation of Measurement
Congested Hours	13:19	Worst	4:35	Hours per day when 20% of system is congested
Travel Time Index	1.42	Worst	1.263	Ratio of peak-period travel time to free-flow travel time
Planning Time Index	1.90	Worst	1.585	Factor showing extra time to set aside for on-time arrivals because of travel time variation

Source: USDOT *Urban Congestion Report*, May-July, 2008, National Executive Summary, Final.

Why Managed Lanes?

**CONGESTION:
EASTBOUND
KENNEDY/I-90
RIVER ROAD
TO EDENS
JUNCTION**



DATA: YEAR 2007, TU-TH

November, 2008



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Why Managed Lanes? Financial Constraint



Great
Expense of
Congestion
Relief through
Mega-Projects

Red Line:
\$282 Million;

Dan Ryan
Expressway:
\$975 Million

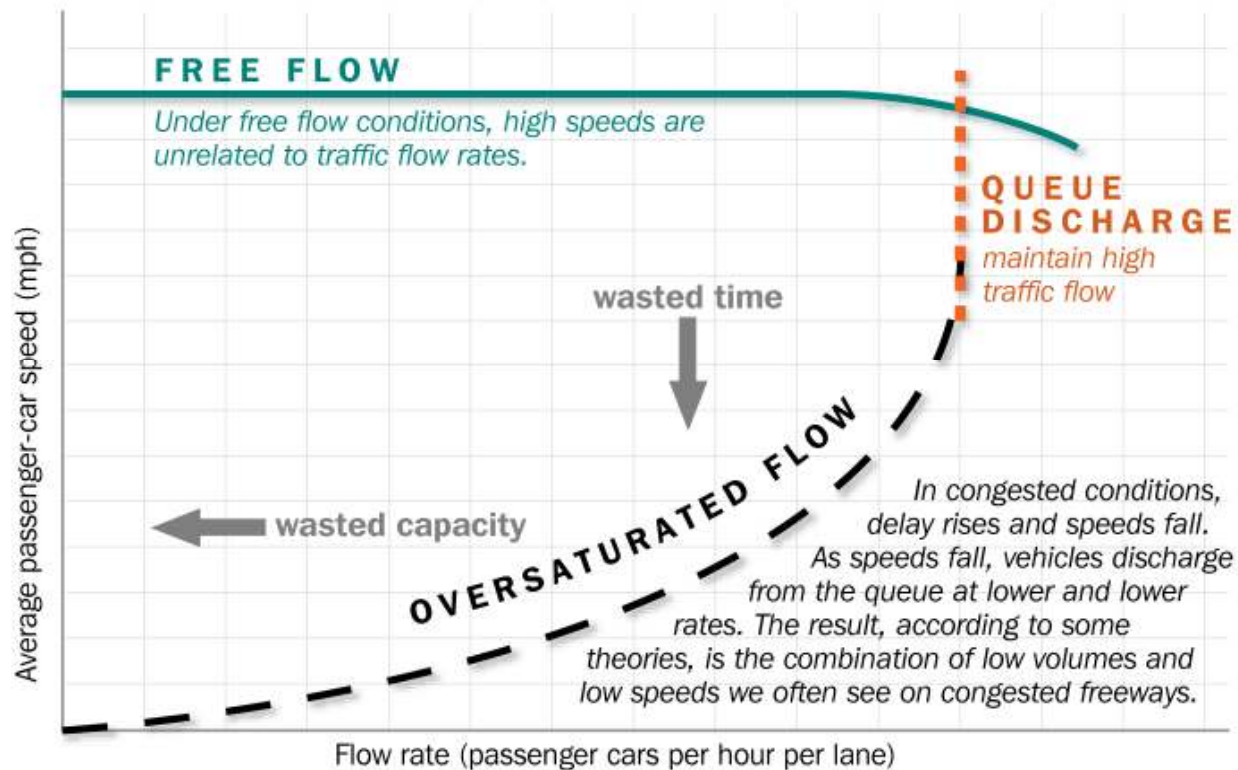
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Why Managed Lanes?

Freeway Traffic Flow Theory



Source: Adapted from Highway Capacity Manual 2000 Exhibit 13.4

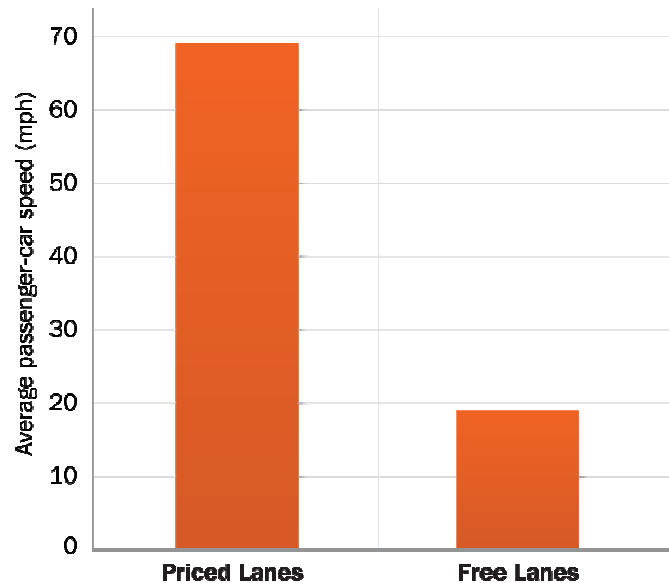
Why Managed Lanes?

Comparison of Speeds and Vehicle Throughput

on lanes with and without congestion pricing, State Route 91, California

Speed

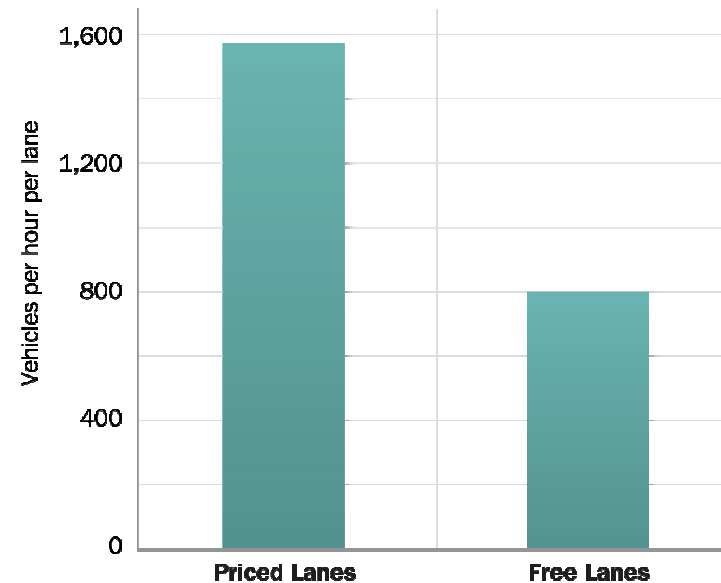
Traffic speeds during rush hours on State Route 91



Source: USDOT's Congestion Pricing Primer

Throughput

Peak period vehicle throughput during the hour with heaviest traffic on State Route 91



Source: USDOT's Congestion Pricing Primer

What Are Managed Lanes?

- Dedicated Lanes on Freeway or Arterial
- Apply One or More Advanced Operational Strategies:
 - Congestion Pricing
 - Vehicle Preferences
 - Intelligent Transportation Systems (Technology)
- Lanes Actively Managed to Meet Pre-Defined Performance Objectives

Dedicating Lanes

- Express Lanes
- Reversible Lanes
- Egress/Ingress Minimized
- Barriers?
- How Many Lanes?



Congestion Pricing

- Variable Pricing: tolls by Time of Day per Schedule
- Dynamic Pricing: tolls raised/lowered every 15 min to distribute traffic flow and reach LOS “C” target



Vehicle Preferences

- High-Occupancy Vehicles (Including Transit)
- Trucks
- Transit
- Trucks + Transit = Long-Length Vehicles



ITS Applications: Information and Management Tools

- Comprehensive Real-Time Highway Performance Information
- Tools to Control Flow



Merging Concepts: HOT Lanes

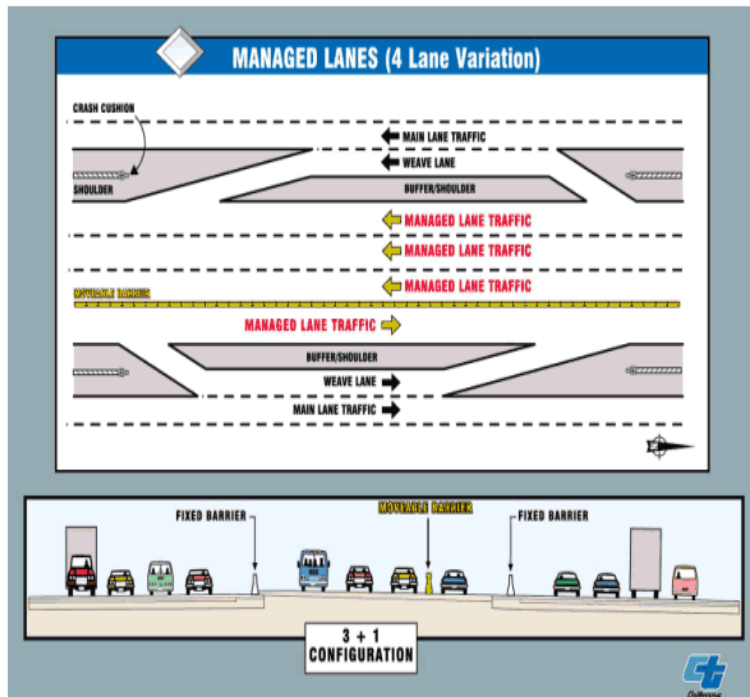
- High Occupancy Vehicles + Congestion Pricing
- High Occupancy Vehicles May Be Limited to Registered Carpools, Vanpools, and Transit



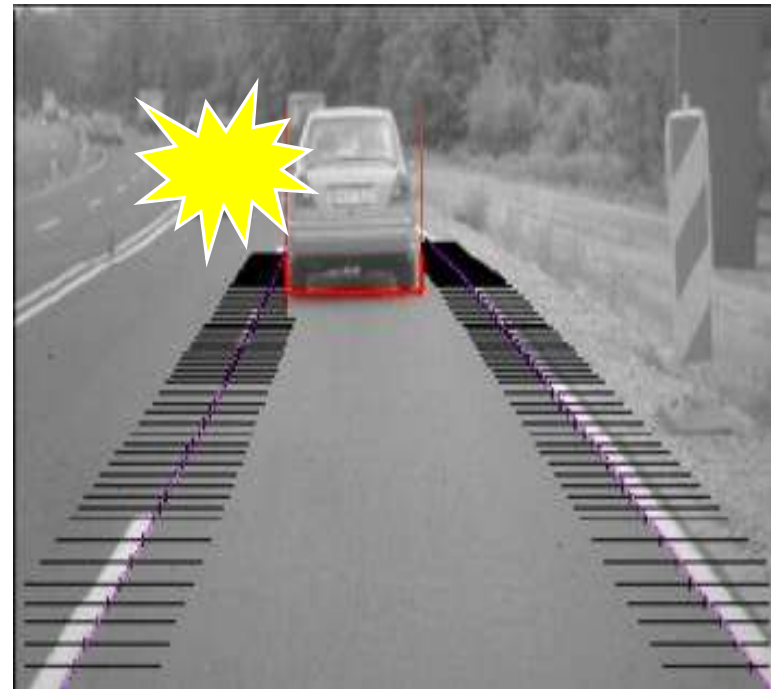
Performance Objectives for Managed Lanes

- Reduce Delay from both Recurring and Non-Recurring Congestion
- Improve Vehicle, Person, and Goods Throughput
- Improve Safe Operation of Expressway Facility

Future Concepts: System Operations



Variable Lane Deployment



Automated Vehicle Guidance

Future Concepts- Goods Throughput

- Freight Only Lane Systems
- Truck Bypass Segments
- Direct Ramp Access To/From Facilities
- Subscription-type tolling arrangements for shippers
- Increased financial participation in capital facility development by shippers and trucking interests



Bottom Line:

The Case for Managed Lanes

By Managing Lanes (Dedicating Lanes, Using Advanced Strategies, and Technologies), Metropolitan Chicago Can:

- Reduce or Eliminate Congestion on Managed Facilities
- Improve Peak-Period Throughput
- Improve Speeds
- Reduce Crashes and Highway Casualties